REMARKS

Claims 1-23 are pending. Claims 1, 7, 11 and 16 have been amended herein. Claims 9 and 10 have been cancelled herein.

Claims 1, 7, 11 and 16 have been amended herein and as amended, are fully supported in the detailed description. No new matter has been added to the specification.

35 U.S.C. §102

Claims 1 - 23 have been rejected under 35 U.S.C. §102 as being unpatentable over U.S. Patent 5,621,308 to Kadanka et al.

Regarding Claim 1, Claim 1, as amended, Claims a band-gap reference circuit, a buffer circuit, and a voltage pull-up device, wherein the voltage pull-up device acts to reduce a required supply voltage to maintain a band-gap reference voltage and wherein the voltage pull-up device is implemented as a transistor with less than 1.0 VBE. The cited reference does not teach a VBE of less than 1.0 which enables a low supply voltage. In fact, Kadanka et al. teaches to a resistor, functioning as a pull-up device, with a value of 10^5 ohms (col. 3, line 29). This resistor in Kadanka is connected between the reference node and the ground node (col 3, lines 28-30). Applicant submits that this large value of resistor forces Kadanka's supply voltage high (col. 2, lines 40-45). Applicant's present claimed invention eliminates the need for a similar high supply voltage by a "voltage pull-up device (which) acts to reduce a required supply voltage to maintain a band-gap reference voltage and wherein said voltage pull-up device is implemented as a transistor with less than 1.0 VBE." Claim 1, as amended, more clearly claims the novel features of the present claimed invention and, as amended, is in condition for allowance.

Independent Claims 7 and 16, as amended, recite limitation similar to those found in independent Claim 1. Claims 2 – 6 are dependent from amended independent Claim 1. Claims 8, 11, as amended, and 12 – 15 depend from allowable, as amended, independent Claim 7. Claims 17 – 23 depend from allowable, as amended, independent Claim 16. These claims recite further features of the presently claimed invention.

Therefore, Applicant respectfully submits that Kadanka et al. does not teach to Applicant's present claimed invention. Independent Claims 1, 7, and 16, and dependent Claims 2 – 6, 8, 11 – 15, and 17 – 23, therefore, traverse Examiner's rejections.

CONCLUSION

In light of the foregoing amendments and remarks, Applicant respectfully submits that the pending claims are in condition for allowance. Applicant respectfully requests reconsideration of the application and allowance of the pending Claims.

Applicant has reviewed the following patents which were cited but not relied upon and respectfully asserts that the present claimed invention overcomes these references: US 5,451,859; US 5,751,182; US 6,150,872; and US 6,433,621.

The Examiner is invited to contact Applicant's undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) A low impedance band-gap reference circuit, comprising:

a band-gap reference circuit;

a buffer circuit electronically coupled with said band-gap reference circuit; and

a voltage pull-up device electronically coupled with said band-gap reference circuit and said buffer circuit, wherein said voltage pull-up device acts to reduce a required supply voltage to maintain a band-gap reference voltage and wherein said voltage pull-up device is implemented as a transistor with less than 1.0 VBE.

7. (Amended) An electronic device, comprising:

a silicon substrate;

electronic circuitry constructed in said silicon substrate; and

a band-gap reference circuit electronically coupled in said electronic device, wherein said electronic circuitry requires reference to the output voltage of said band-gap reference circuit and said band-gap reference circuit is enabled for low impedance by a buffer circuit comprising a transistor with less than 1.0 VBE.

11. (Amended) An electronic device as described in Claim [10] 7, wherein said transistor with less than 1.0 VBE [circuit] is connected as an emitter follower.

16. (Amended) In an electronic device, a method for providing a reference voltage, comprising:

flowing current through an electronic element such that the band-gap voltage of said electronic element provides said reference voltage;

providing a buffer circuit enabled to provide low impedance; and

adjusting the voltage across said buffer circuit so that said band-gap reference voltage is maintained, wherein said voltage is a VBE OF LESS THAN 1.0 V.